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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,003	09/11/2003	Young-Bae Jung	21C-0085	5938

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EXAMINER
CHEN, WEN YING PATTY

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 08/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/660,003	JUNG ET AL.	
	Examiner	Art Unit	
	W. Patty Chen	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24,26,27,30 and 31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *23,24,26,27,30 and 31* is/are allowed.

6)☒ Claim(s) *1,2,4-6,9-13,15-17 and 20-22* is/are rejected.

7)☒ Claim(s) *3,7,8,14,18 and 19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Applicant's Amendment filed May 30, 2006 has been received. Claims 1-24, 26, 27, 30 and 31 remain pending in the current application.

Response to Arguments

Applicant's arguments, filed May 30, 2006, with respect to all claims rejected under 35 U.S.C. 103(a) in view of Ishige et al. (US 2004/0012744) have been fully considered and are persuasive. Ishige et al. is deemed not of prior art in view of the translated Foreign Priority document filed May 30, 2006, therefore, the rejection of claims 3, 8, 14, 19, 23, 24, 26, 27, 30 and 31 has been withdrawn.

Applicant's arguments, filed May 30, 2006, with respect to the rejection(s) of all claim(s) under 35 U.S.C. 103(a) in view of Takahashi et al. (US 2003/0112382)) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Asai (JP 5-150263) as set forth below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-2, 4-6, 9-10, 12-13, 15-17 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al. (US 2003/0063080) in view of Asai (JP 5-150263).

With respect to claims 1 and 12: Takahashi et al. disclose in Figure 1 a liquid crystal display device comprising: a liquid crystal display panel including a first substrate, a second substrate facing the first substrate, and a liquid crystal layer disposed between the first and second substrates (Paragraphs 0003-0005), the first substrate including a display region and a peripheral region (as shown in Figure 1) adjacent to the display region, the display region having a plurality of pixels (Paragraph 0043), a plurality of data lines (element DL) and a plurality of

scan lines (element GL), the peripheral region having a first peripheral region (element SUB1) adjacent to first ends of the data lines and a second peripheral region adjacent to first ends of the scan lines (as shown in Figure 1, region where the data lines do not cross the gate lines);

a driver section including a scan driver circuit (element GDR1) and a data driver circuit (element DDR), the scan driver circuit and the data driver circuit formed in the first peripheral region, the scan driver circuit providing the scan lines with a scan driving signal, and the data driver circuit providing the data lines with a data signal; and

a first connecting part, formed in the second peripheral region to be coupled to the first ends of the scan lines, the first connecting part including a plurality of groups, the scan driving signal being applied to the first connecting part.

Takahashi et al. fail to disclose that each of the groups of the first connecting part is disposed in layers different from each other.

However, Asai discloses in Figures 1 and 2 groups of connecting scan lines (elements 101 and 103), which are disposed in layers different from each other.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a liquid crystal display device as taught by Takahashi et al. wherein the groups of connecting scan lines are disposed in layers different from each other as taught by Asai, since Asai teaches that by forming the signal lines in adjacent to each other in different layers helps to prevent short circuit and improves manufacture yield (Paragraph 0024).

As to claims 2 and 13: Asai further discloses in Figure 3 that the first connecting part includes: a first group having a plurality of first connecting lines (element 103) formed from a

same layer as the scan lines; and a second group having a plurality of second connecting lines (element 103) formed from a same group as the data lines.

As to claims 4 and 15: Asai further discloses in Figure 3 that the substrate further comprises a first insulating layer (element 108), interposed between the first and second connecting lines, for electrically insulating the first connecting lines from the second connecting lines.

As to claims 5 and 16: Asai further discloses in Figure 3 and Paragraphs 0027-0029 that the pixels respectively include a switching device (element 203) coupled to one of the data lines and one of the scan lines, the switching device has a control electrode, a first current electrode, a second current electrode, a second insulating layer (element 108), a semiconductor layer, a second insulating layer formed on the control electrode, the semiconductor layer formed on the second insulating layer, the first and second current electrodes formed on the semiconductor layer to be separated from each other by a predetermined distance.

As to claims 6 and 17: Asai further discloses in Figure 3 that the first insulating layer (element 108) is a same layer as the second insulating layer (element 108).

As to claims 9 and 20: Asai further discloses in Figures 1 and 2 that the first insulation layer includes a contact hole (element 106) for exposing the first ends of the scan lines so that the first connecting lines are electrically connected to the first ends of the scan lines through the contact hole.

As to claims 10 and 21: Takahashi et al. further disclose in Figure 1 that the substrate further includes a second connecting part (lines connected to element GDR2), the second connecting part is formed in a third peripheral region (as shown in the figure), is coupled to

second ends of the scan lines (element GL) and includes a plurality of third groups of connecting lines, the region is adjacent to the second ends of the scan lines, the scan driving signal is applied to the second connecting part.

Takahashi et al. fail to disclose that each of the groups of the second connecting part is disposed in layers different from each other.

However, Asai discloses in Figures 1 and 2 groups of connecting scan lines (elements 101 and 103), which are disposed in layers different from each other.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a liquid crystal display device as taught by Takahashi et al. wherein the groups of connecting scan lines are disposed in layers different from each other as taught by Asai, since Asai teaches that by forming the signal lines in adjacent to each other in different layers helps to prevent short circuit and improves manufacture yield (Paragraph 0024).

Claims 11 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al. (US 2003/0063080) and Asai (JP 5-150263) in view of Tsuyuki et al. (US 6853361).

Takahashi et al. and Asai disclose all of the limitations set forth in the previous claims, but both fail to disclose that the first connecting part is electrically coupled to odd numbered scan lines, and the second connecting part is electrically coupled to even numbered scan lines.

However, Tsuyuki et al. disclose in Figure 5 a substrate wherein the first connecting part (element G1) is electrically coupled to odd number scan lines, and the second connecting part (element G2) is electrically coupled to even number scan lines (Abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a liquid crystal display device as taught by Takahashi et al. and Asai wherein the first connecting part is electrically coupled to odd numbered scan lines, and the second connecting part is electrically coupled to even numbered scan lines as taught by Tsuyuki et al., since Tsuyuki et al. teach that such configuration of the scan lines helps maintain wire reliability while the wiring spacing is narrowed, thus the wiring area occupying in the panel is decreased (Column 2, lines 33-46).

Allowable Subject Matter

Claims 3, 7-8, 14 and 18-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 3 and 14: None of the prior arts either alone or in combination fairly teach or suggest a substrate for a display device comprising a plurality of groups of connecting lines for transferring scan signals to the scan lines, such that a first group having a plurality of first connecting lines partly overlaps with a second group having a plurality of second connecting lines. Therefore, claims 3 and 14 are deemed non-obvious and inventive over the prior arts, thus are allowable over the prior arts.

Regarding claims 7-8 and 18-19: None of the prior arts either alone or in combination fairly teach or suggest a substrate for a display device comprising a first insulating layer for separating a first group of connecting lines with a second group of connecting lines, such that the

first insulating layer includes a semiconductor layer and a second insulating layer that are formed between the gate electrode and the drain/source electrodes of a switching device, and further that the semiconductor layer is formed underlying the first connecting lines. Therefore, claims 7-8 and 18-19 are deemed non-obvious and inventive over the prior arts, thus are allowable over the prior arts.

Claims 23, 24, 26, 27, 30 and 31 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 23 and 31: None of the prior arts either alone or in combination fairly teach or suggest a method of manufacturing a liquid crystal display device , the method comprising forming a plurality of groups of connecting lines for transferring scan signals to the scan lines, such that a first group having a plurality of first connecting lines partly overlaps with a second group having a plurality of second connecting lines. Therefore, claims 23 and 31 are deemed non-obvious and inventive over the prior arts, thus are allowed over the prior arts.

As to claims 24, 26 and 27: Since claims 24, 26 and 27 depend directly on the allowed claim 23, therefore are also allowed.

Regarding claim 30: None of the prior arts either alone or in combination fairly teach or suggest a substrate for a display device comprising a plurality of groups of connecting lines for transferring scan signals to the scan lines, such that a first group having a plurality of first connecting lines partly overlaps with a second group having a plurality of second connecting lines. Therefore, claim 30 is deemed non-obvious and inventive over the prior arts, thus is allowed over the prior arts.

Relevant Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kim et al. (US 6700636), wherein in Figures 4A and 4B Kim et al. disclose a substrate for a display device comprising of groups of connecting lines for transferring data signals, such that a first group having a plurality of first connecting lines partly overlaps with at least a second group having a plurality of second connecting lines.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to W. Patty Chen whose telephone number is (571)272-8444. The examiner can normally be reached on 8:00-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms can be reached on (571)272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

W. Patty Chen
Examiner
Art Unit 2871

WPC
8/17/06

TOAN TON
PRIMARY EXAMINER